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Injection Moulded of Lightweight Kenaf Fibre Thermoplastic Elastomer Composite for Automotive Components



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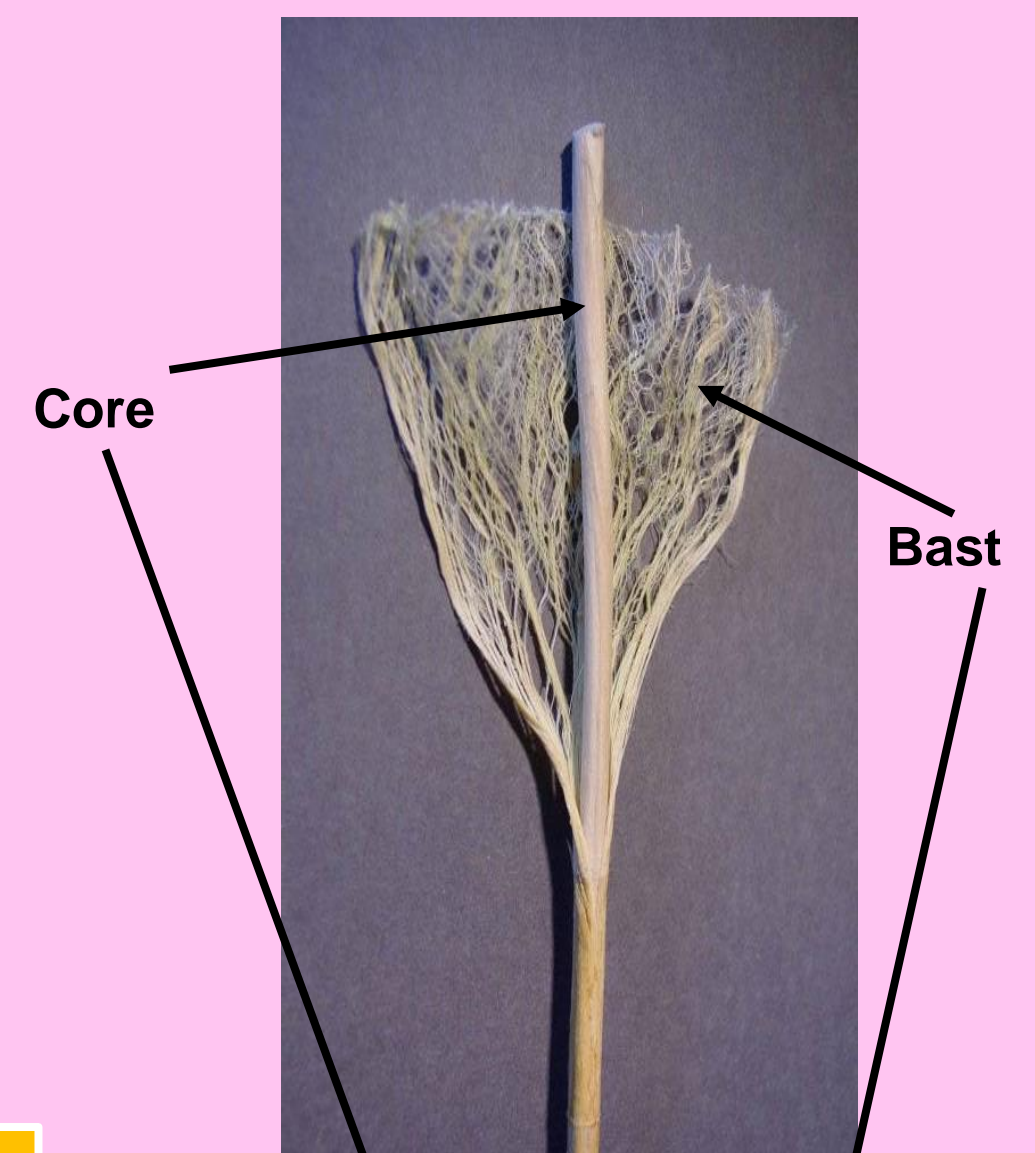
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OBJECTIVE

To use renewable raw materials in car production



Seats are also partly made of natural fibres



NOVELTY

New material : TPNR Blend Reinforced with Kenaf Fibre, PP/EPDM Blend Reinforced with Kenaf Fibre

Process : Compatibilizer agent, maleic anhydride polypropylene (MAPP)

Parameter : 1) Kenaf fibre loading 0-20 by vol%
2) 500 μm kenaf fibre size
3) MAPP 5 vol%

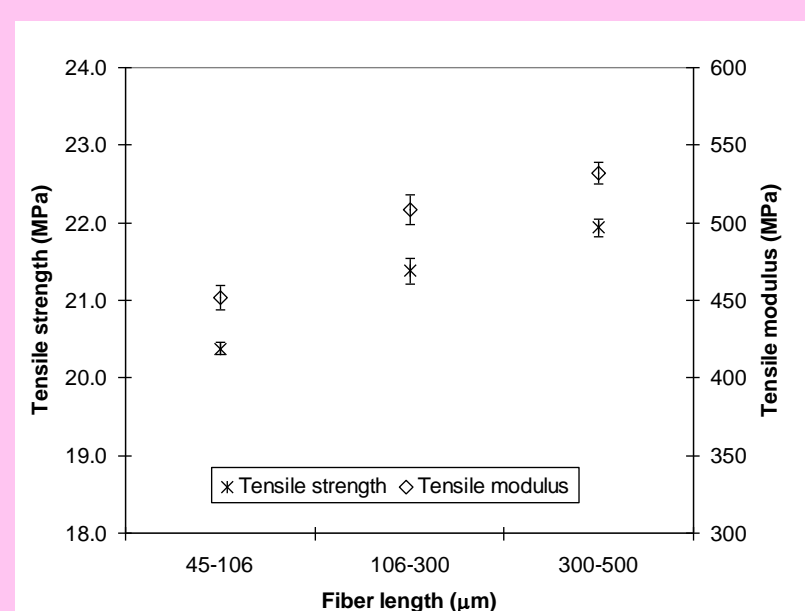
RESULTS

Effectiveness

: Improved impact strength up to 60% by using TPNR
Improved impact strength up to 90% by using PP/EPDM

Commercial potentialities
Sustainable development

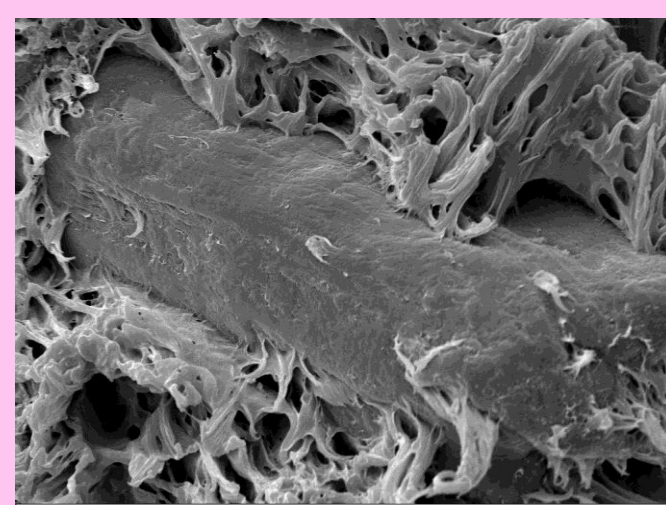
: Automotive industries
: TPE properties lying between rubber and plastic, make it different class of polymeric material. Both polymer blends can be processed using existing thermoplastic machinery at comparable prices. Use of natural fibre provide weight reduction and less harm to processing equipments.



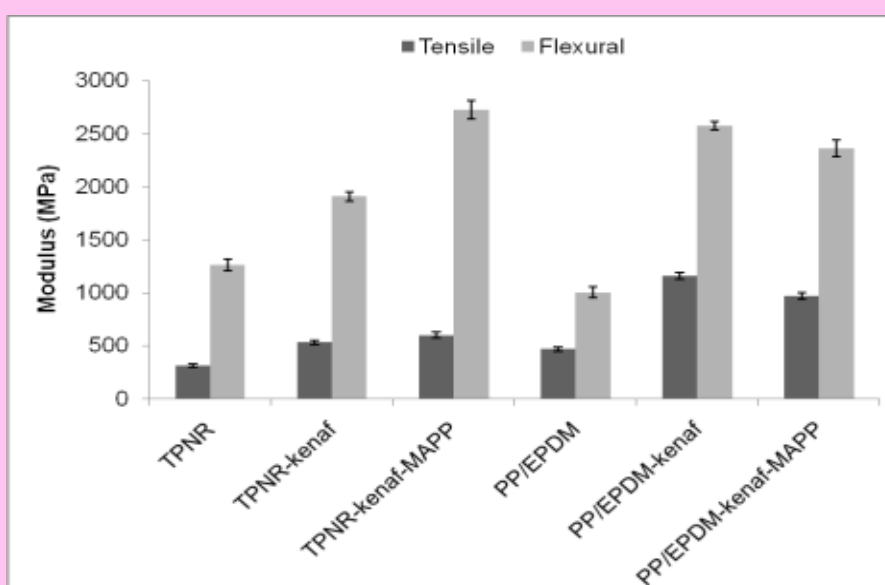
Effect of kenaf fibre size on tensile properties



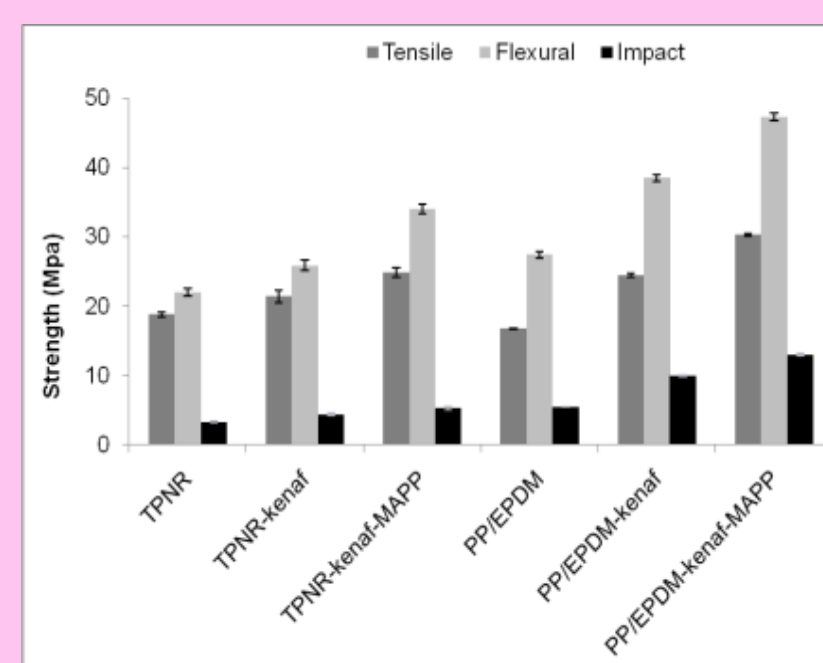
Untreated kenaf fibre



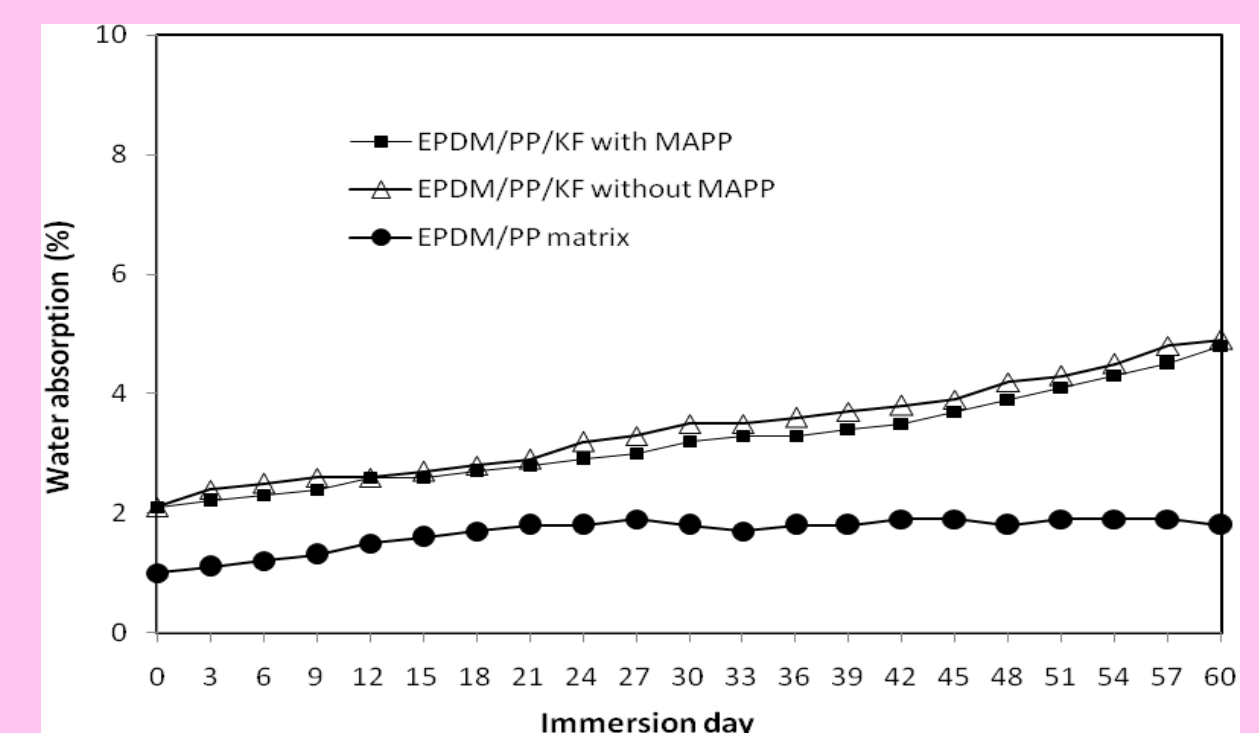
Treated kenaf fibre with MAPP



Effect of kenaf fibre & MAPP on stiffness



Effect of kenaf fibre & MAPP on strengths



Water absorption behaviour of thermoplastic elastomer composites



Essential work of fracture of matrix

PUBLICATIONS

1. H. Anuar, A. Zuraida. 2010. Accepted manuscript in Composites Part B. [IF=1.704].
2. Wan Nazri W. B., H. Anuar, Sahrim H.A., Rozaidi R., N.A. Jamal. 2010. Polymer Plastic Technology Engineering 49(13): 1315-1322. [IF=0.42].
3. Wan Nazri W. B., Hazleen A., Sahrim H.A., Rozaidi R. 2010. Paper accepted for publication in J. Tropic. Agric. and Fd. Sc.

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